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Who can vaccinate? A study of the diversification of vaccination actors in France

Elsa DORNE

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Professional Advisor
Alain Dutilleul, Sanofi Pasteur

Academic Advisor
Simon Jean-Baptiste Combes, EHESP

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LIST OF ACRONYMS

ANSM: Agence nationale de sécurité du médicament (National Agency for Medicines and Health Products Safety)

CPAM: Caisse Primaire d'Assurances Maladie (Primary Health Insurance Fund)

CPTS: Communautés Professionnelles Territoriales de Santé (Territorial Professional Health Communities)

CTV: Commission Technique des Vaccinations (Technical Committee for Vaccinations)

DTP: Diphtheria, Tetanus, Poliomyelitis

EMA: European Medicines Agency

HAS: Haute Autorité de Santé (High Authority of Health)

HPV: Human Papillomavirus

IGAS: Inspection générale des affaires sociales (General Inspectorate of Social Affairs)

LEEM: Les Entreprises du Médicament (Professional Organisation of Drug Companies)

MMR: Measles, Mumps and Rubella

PMI: Protection Maternelle et Infantile (Maternal and Childhood Protection)

SMUR: Service Mobile d'Urgence et Réanimation (Mobile Emergency and Intensive Care Service)

WHO: World Health Organisation

ABSTRACT

Objective: The Covid-19 pandemic accelerated the process of diversification of health professionals entitled to vaccinate in France. This reshuffles the role and interactions of health professionals in the vaccine ecosystem. The objective of this work is to uncover the factors that may prevent or encourage the diversification of vaccination actors, in a pandemic – epidemic setting, but also in a routine immunization setting, to answer the following research question: what challenges does the diversification of vaccinators face in France?

Methods: From March to May 2021, semi-directed interviews were conducted with 10 health professionals participating in the Covid-19 vaccination campaign but also routine immunization campaigns. Interviews allowed to analyze the positions and perceptions of health professionals regarding the diversification of vaccination actors and how they see their professional role in vaccination. Grounded theory was then used to analyze data.

Key findings: Collaboration appears as the notion that needs to be reinforced to ensure successful actors' diversification. Whilst nurses and general practitioners acknowledge the need to involve many actors during pandemics, they feel that there is no urge to diversify actors for routine vaccination and defend their turf. All health professionals call for guidelines and clear boundaries regarding the role of new actors, along with the establishment of an electronic immunization record.

Conclusions: Turf wars represent the main factor that could impede the diversification of vaccinators. To strengthen coordination and collaboration among health professionals is needed, as well as to increase the role of pharmacists as a prevention actor, to reinforce the sustainability of healthcare systems.

Keywords: vaccination, vaccines, vaccine coverage, vaccine ecosystem, immunization, Covid-19, pharmacist, physician, nurse, Haute Autorité de Santé

1. INTRODUCTION

1.1. Context

The vaccine ecosystem has experienced an upheaval with the current Covid-19 pandemic, which is the defining global health crisis of our time. Since 2019, it has spread to every human inhabited continent. More than a health crisis, the pandemic is having devastating social, economic and political impacts, that will leave traces on the long-term (UNDP, 2021). The development of Covid-19 vaccines has been seen as a relieve, a long-lasting solution. Since almost two centuries, vaccination has been an essential prevention policy of infectious diseases which largely contributes to decrease mortality and morbidity (Collange et al., 2015). It is the main tool for primary prevention of disease (European Commission, 2021). The economic cost of vaccine-preventable diseases in adults is estimated at several billions dollars (Ozawa et al., 2016). Vaccination is an effective and efficient public health intervention. However, despite the benefits it brings, vaccine coverage rates are decreasing, which leads to the re-emergence of avoidable diseases (Scholtes et al., 2020). Issues of vaccine hesitancy and accessibility have also been a concern for policymakers.

Vaccination comprises a complex interconnected ecosystem of international organizations, vaccine manufacturers, donor agencies, foundations, nongovernmental organisms. The vaccination ecosystem is shaped by a landscape of stakeholders, policy processes, programmes, and public health objectives. It directly impacts the processes of supply, health technology assessments, programmes' monitoring, funding and procurement. The vaccination process, in its entire acceptance, comprises a whole cycle, that associates different components of a classical sequential approach: orientation and guidance of people, vaccinal review, prescription, dispensing, follow-up, boosters and pharmacovigilance. Thus, vaccination sees the intervention of several health practitioners (Megerlin, 2012) who interact with each other and impact the whole ecosystem. The role and goal of health regulators is to allow the efficient allocation of resources according to the local needs and human resources (Megerlin, 2012). This is notably to facilitate access and to reach the majority of people with preventive policies.

1.2. Immunization policies and Healthcare System Sustainability

In a context of increasing pressures on healthcare budgets, vaccination contributes to the sustainability of healthcare systems due to a more efficient use of healthcare resources

(Largeron et al., 2015). Vaccination prevents diseases in children, adults and the elderly, which in turn results in fewer medical visits, diagnosis and treatments, leading in savings in healthcare costs. Vaccines can improve the sustainability of healthcare systems by directly impacting healthcare resources and costs, but also by answering unmet medical needs when there are no satisfactory treatments or other prevention measures (Largeron et al., 2015). Vaccination provides important savings by avoiding direct and indirect accosts linked to treating the disease and possible long-term disability (Rémy et al., 2015). It is estimated that if all at-risk patients were vaccinated against seasonal influenza in Spain, France, the United Kingdom, Italy and Germany, it will allow to save €1.59 billion from the reduction in hospitalisations and €39.45 million in reduced primary care visits (Kirkdale et al., 2017).

Health promotion and disease prevention are key components of resilient healthcare systems (EXPH, 2020). In 2018, the European Union member states spend on average 3% of their health budgets on prevention and public health (OECD & European Union, 2020); in 2014, vaccine expenditure fell below 0,5% of healthcare spending for many European countries (Ethgen et al., 2018). Immunization is the second most effective disease prevention measure, after water purification (Ethgen et al., 2018). Implementation of vaccination programs is still suboptimal in Europe, leading to extra pressure on the healthcare system and society from avoidable vaccine-preventable illnesses. However, immunization throughout life, during childhood and beyond, holds significant benefits at the individual, population and socioeconomic levels. At the individual level, immunization offers people a range of benefits depending on their stage in life and the risks they face. Vaccination at any age can deliver direct economic benefits including reduced and more efficient use of healthcare resources (Largeron et al., 2015) such as reduced medicine consumption or shorter hospital stays, increased quality of life (Postma et al., 2015), gains of productivity (Tate et al., 2019). Estimates suggest it would cost less than €4000 to deliver up to 17 vaccines throughout life in Europe, considerably less than other population-wide prevention approaches (Ethgen et al., 2016).

It is especially interesting to provide easy access points for routine vaccination (Shen et al., 2014), but also for boosters and adolescent vaccination. Pharmacies represent a new accessible channel for vaccination. When the health professionals' network is integrated and workers communicate between them, with the physician doing prevention, and communication being done about the pharmacist's vaccination training, then parents and adolescents are reassured. This represents a new channel for people and adolescents that do not see their general practitioners often (Westrick et al., 2017), which increase immunization throughout the life-course. Vaccination by pharmacists has been shown to create value for payors and to

reduce pressure on healthcare systems (Kirkdale et al., 2017). As to increase vaccine coverage rate and reduce the cost put on healthcare systems, researchers studied the epidemiologic and economic impact of pharmacies as vaccination locations during an influenza epidemic (Bartsch et al., 2018). They found that adding pharmacies could avert 11.9 million symptomatic influenza cases, up to 94.307 deaths and \$1.0 billion in direct – vaccine administration and healthcare – costs. These numbers increased with the severity of the epidemic. Thus, administering vaccines in community pharmacies can increase vaccination coverage (Bartsch et al., 2018), prevent avoidable deaths and reduce costs on healthcare systems.

Increasing prevention budgets, strengthening prevention policies and developing new access channels for vaccination thus appear as a policy priority, especially given the socio-economic consequences of an epidemic or a pandemic (Faure et al., 2017).

1.3. Literature review

1.3.1. Experiences from abroad

Experiences from abroad were taken into account in the report on vaccination recommendations of the deputy Sandrine Hurel in 2016 – which was missioned by the French Prime Minister on a mission on vaccine policy, as detailed below –, especially regarding the important role of pharmacists and nurses in foreign countries such as the United Kingdom, Canada, the United States (Hurel, 2016). These examples are insightful for policymakers and researchers, as they provide concrete application and benchmarks. Whilst vaccines have traditionally been delivered by the general practitioner, since the 1990s community pharmacists have delivered immunization services in Canada, Portugal, the United States and the United Kingdom. This literature review will allow to define the different actors of vaccination in other countries, their competences and analyze the differences of institutional framework.

As a response to the increase of vaccine-preventable deaths among adults, pharmacy-based immunization services were implemented in the United States and were widely accepted by patients. Despite organizational and political hurdles impeding the feasibility and effectiveness of vaccine delivery, community pharmacies appeared as facilitating sites for adult vaccination. Pharmacies were able to engage with under-vaccinated populations that are difficult to reach through traditional methods (Burson et al., 2016). In the United States, challenges to pharmacy vaccination included the reimbursement and insurance coverage, education and prevention towards parents and patients, and time-constraint (Islam et al., 2017). Another study regarded

Human Papillomavirus (HPV) in the United States and explored the relative advantage of pharmacies compared to general practitioners' offices in the delivering of HPV vaccines. It appeared that parents considered physicians' offices as a better health care environment than pharmacies, with more privacy, and safer for vaccination. However, parents acknowledged that pharmacies are more accessible, with more flexible hours. Thus, to be more appealing, pharmacies could build on their advantage of more convenient hours and accessibility, and enhance their healthcare environment (Shah et al., 2018). A study in Ireland also concluded that vaccination in pharmacies had several benefits, such as an eased access, more frequent contact with the population, and minimal spending to implement immunization programs in the existing pharmacy networks (Pharmacy Ireland 2020 Working Group, 2008).

In Portugal, flu vaccination in pharmacies started in 2008 based on the United States' experience for adults over 65 years old with a prescription (Dias de Almeida, 2015), with 60% of pharmacists providing the service (Kirkdale et al., 2017). For the second year, pharmacists were considered as the second provider of vaccines for influenza (Alsaleh, 2020). In the United Kingdom, vaccination through pharmacies is becoming more widespread. As community pharmacists participate in the flu vaccination campaigns, results show that it increases vaccination coverage rates and is associated with high levels of patient acceptability. Accessibility is the key determinant for choosing pharmacies for patients (Warner et al., 2013). Implemented since the 2000s, vaccination by pharmacists is largely adopted by the population (Académie Nationale de Pharmacie, 2015). Vaccination by pharmacists in England allowed to go from 59% of people vaccinated against seasonal influenza in 2005 to 76% in 2008 (Paitraud, 2014).

Finally, travel vaccines may enter in the pharmacist's authorized vaccinations in Switzerland, which could follow the United Kingdom regarding this matter (Leuthold et al., 2018). The increasing number of travels represents a new public health issue, where access points for vaccination for everyone need to be developed.

1.3.2. The different institutional frameworks

In countries expanding vaccination towards pharmacists, there has been a political willingness to expand vaccination powers to new health professionals for a long time, in order to increase vaccine coverage rates. In the United States, the topic of vaccination by pharmacists was evoked from 1993 by the Secretary of Health and Human Services Donna Shalala, regarding children vaccination especially. Maine was the last State to allow flu vaccination by pharmacists in 2009. In certain States, pharmacists can inject the measles, mumps and rubella

(MMR) vaccine, HPV vaccine, diphtheria, tetanus and poliomyelitis (DTP) vaccine, Shingles vaccine and pneumococcus vaccine (Dubroc, 2018). In the United Kingdom, the willingness to involve more pharmacists in vaccination comes from the changes in the healthcare system, from hospital to community care, and curative to preventive (Anderson & Sharma, 2020). In France, health professionals – and especially nurses and pharmacists – would like to be involved more in prevention activities (Ordre National des Infirmiers, 2021). Pharmacists have developed in 2018 a report to precisely develop prevention in France, to illustrate the role and the implication of pharmacists in prevention (Ordre National des Pharmaciens, 2018). The French healthcare system is underperforming in prevention policies and has rather focused on acute care (Tabuteau, 2009), although prevention plans are developed and established to strengthen prevention policies and promote vaccination (Lequillierier, 2019).

1.4. The French institutional context

1.4.1. Vaccination actors

What are the authorities in France that frame vaccination?

The Health Ministry formulates the vaccines' policy. The Haute Autorité de Santé (HAS), with the technical committee of vaccinations (CTV), give advice and recommendations on vaccination based on scientific knowledge. They also assess vaccines if the laboratory that produces them wants its products to be reimbursed by the national health insurance. Santé Publique France monitors diseases for which vaccines exist, assesses vaccination coverage, and informs the public and health professionals about vaccinations. The National Agency for Medicines and Health Products Safety (ANSM) controls the quality of vaccines and monitors the benefit / risk ratio of vaccines, collecting all reported adverse reactions. It works in collaboration with the European Medicines Agency (EMA). The national health insurance reimburses vaccines and their administration and conducts campaigns to promote vaccinations, such as influenza among health professionals (Vaccination Info Service, 2019).

Who can prescribe a vaccine?

Vaccines can be prescribed by a doctor (general practitioner, specialist, occupational physician), in town or at the hospital; a midwife may also prescribe certain vaccines for a woman as part of the gynecological and contraceptive follow-up, a woman planning to become pregnant, a pregnant woman or a woman who has just given birth, the newborn's entourage until he is 2 months old but also since 2019 for children (Vaccination Info Service, 2017).

Who can deliver a vaccine?

Pharmacists can deliver vaccines. As part of their missions, vaccination centers, approved international vaccination centers and Maternal and Infantile Protection (PMI) may be required to provide the vaccine for administration (Vaccination Info Service, 2019).

Who can vaccinate?

The following health professionals, whether they work in private practice, in hospitals, in health centers, in PMI, in vaccination centers, in approved international vaccination centers or in pharmacies, can vaccinate: a doctor (general practitioner, specialist, occupational doctor), a midwife for pregnant women, newborns and children, a nurse on medical prescription, a pharmacist only against seasonal flu and if they have validated dedicated training and practice in a pharmacy meeting specific technical conditions (Ordre national des Pharmaciens, 2021). The list of authorized vaccinations is fixed for each profession in the Public Health Code (Ministère des Solidarités et de la Santé, 2017).

1.4.2. Pharmacies knock at the door

In France, the topic of diversification of vaccination actors has been pushed by pharmacists, and especially the National Order of Pharmacists. The topic was already present in the policy arena; since 2011, the National Academy of Pharmacy and the General Inspectorate of Social Affairs (IGAS) have declared that they were in favor of vaccination in community pharmacies (Freney, 2012). This proposal was relayed in October 2014 by the then Health Minister Marisol Touraine, in the framework of the presentation of her project's law (Paitraud, 2015). However, this proposal triggered critics from general practitioners, which considered that vaccination is a personal medical act with management of contraindications, and nurses considered that there should be a focus on what was already working rather than wanting to implement new measures (Paitraud, 2014). No dedicated article was then included in body of the law. Despite this refusal by nurses, medical professions and policymakers, the National Academy of Pharmacy continued to defend its positions and in 2015 reminded the policymakers that several countries had already authorized vaccination in pharmacies and had seen positive results (Paitraud, 2015). Events were put in place with pharmaceutical industries in the Parliament to raise awareness in the political arena and make the topic more preeminent in the agenda. The following health minister, Agnès Buzyn, seized this topic and developed regulatory texts (Ordre National des Pharmaciens, 2017). Since 2017, pharmacists have experimented seasonal influenza vaccination in the Nouvelle-Aquitaine and Auvergne-Rhône-Alpes regions, then in Occitanie and Hauts-de-France for the 2018-2019 season. About a million people have been vaccinated by pharmacists in these two influenza seasons (Lequillerier, 2019). The significant mobilization of pharmacists as well as the strong demand

from patients for whom access to vaccination is greatly facilitated contributed to the success of this experiment and to the implementation of its generalization to the whole of the territory from 2019.

1.4.3. Interactions between health professionals

Vaccination comprises a complex interconnected ecosystem of organizations and health professionals. Routine vaccination sees the intervention of several health practitioners (Megerlin, 2012), who interact with each other. However, interactions and opinions regarding the diversification of vaccination actors has not always been positive, despite a need for coordination. Coordination is necessary for the vaccination pathway of the patient. Faced with the prescription or the request for a vaccine (in the event of optional prescription, as for the influenza vaccine), the pharmacist is in theory required to carry out a pharmaceutical analysis and validation aimed at limiting the vaccine risks. The pharmacist must indeed consider the medical profile of the applicant, which raises the question of the availability of information and possible referral to the doctor: as in the case of drugs, the dispensing pharmacist indeed bears independent decision-making responsibility in risk management (Megerlin, 2012).

A specific framework appears as necessary, to coordinate the actions of health professionals. Vaccination in pharmacies appears justified for a reduced number of vaccines, and for specific groups; people to be vaccinated by pharmacists would only be adults and adolescents (Freney, 2012). Pharmacists could perform this act for a limited category of vaccines and subjects, obeying precise criteria and particular conditions: inert vaccines devoid of any contraindication - as well as against seasonal flu, boosters against diphtheria , tetanus, whooping cough, poliomyelitis, as well as against HPV (Megerlin, 2012). Besides, pharmacists may have technical constraints - time, space, professional qualifications (Megerlin, 2012). Finally, training appears necessary, to ensure a good delivering of vaccination in community pharmacies (Freney, 2012).

1.4.4. Rationale for openness to new actors

Community pharmacies are often easy to access and have large working hours; pharmacists see more patients than general practitioners. Due to this close contact with the whole population, pharmacists can contribute to public health education and actions organized by public authorities and the National Health Insurance (Megerlin, 2012). Pharmacists play an important educational and preventive role, notably when they deliver the drugs (Deccache,

2014). Dispensary pharmacists advise on vaccination and shed light on the consequences of non-vaccination for oneself and for others. They adapt their discourse to territorial specificities such as geographical distance, social condition, level of education, language issues, which calls for adaptability. However, the professional status and the functioning of pharmacies make them health professionals apart from the others, notably due to the commercial image that it associated to them, and impacts their credibility (Deccache, 2014).

The introduction of pharmacists in the seasonal flu vaccination campaign is interesting, as seasonal influenza is an infection which bears an important economic cost, and for which countries struggle to reach targets for at-risk populations that are set nationally or internationally (Kirkdale et al., 2017). Traditional providers of vaccination include general practitioners and nurses, but pharmacists are taking a more and more important role regarding this vaccination. The participation of pharmacies to influenza vaccination has contributed to achieve higher coverage rates for at-risk people in the United States (Kirkdale et al., 2017); the participation of pharmacists to vaccination may represent a solution to the insufficient vaccine coverage rates in France (Freney, 2012).

Indeed, part of the rationale to extend vaccination to pharmacists was to improve vaccine coverage rates in France. The objectives fixed regarding vaccine coverage rates – at least 95% for all vaccination except influenza, influenza at 75% - are not achieved for most vaccinations. DTP boosters are especially hard to follow-up (Guthmann et al., 2012). Built on the basis of the recommendations of Sandrine Hurel, former Member of the National Assembly, charged by the Prime Minister with a mission on vaccine policy, the action plan for the renovation of the vaccine policy presented by the former Health Minister Marisol Touraine (Ministère des Solidarités et de la Santé, 2016) aimed to notably strengthen the confidence of the population in vaccination, by responding transparently to their concerns. In addition, Professor Alain Fischer chaired a steering committee for citizen consultation on vaccination which discussed several hypotheses for the evolution of the vaccine policy. Results were outlined in a report, which states that hesitancy regarding vaccination in France translates into insufficient vaccination coverage of the second dose against MMR, vaccination against meningococcus C in children, DTP boosters in adolescents and adults, hepatitis B vaccination in adolescents and adults at risk, and also to epidemic outbreaks of serious and highly contagious infectious diseases, such as measles in 2011, due to the existence of many unvaccinated children and young adults. Factors that may explain the rise in doubts about vaccines include questions about adjuvants, and the primary role of general practitioners regarding confidence in vaccination; general practitioners can find it complicated to respond to their patients' hesitations in matters of vaccines. They complain about a lack of training

which limits their ability to convince reluctant patients, and on the lack of information from practitioners regarding the vaccination status of their patients: immunization records lost or not presented for children, lack of immunization records for adults. In addition to these factors, the context also impacted vaccine confidence: the imperfect management of a hypothetical link between vaccination against hepatitis B and multiple sclerosis, or the imperfect management of the organization of the vaccination campaign during the H1N1 influenza pandemic in 2009, which generated a degree of dissatisfaction and hesitancy notably among health professionals. According to the report, the simplification of the vaccination course is a lever of confidence and improvement of vaccination coverage, and this includes vaccination by the pharmacist (Fischer, 2016). Multiplying vaccination opportunities through new channels of vaccination simplifies the vaccination pathway, leverage confidence and improve vaccine coverage rate (Lequillier, 2019). As mentioned by the HAS, pharmacies are easy to access due to larger working hours and presence in medically underserved areas (HAS, 2018).

As evoked above, the industrial sector also took part in the discussions around the diversification of actors. The Professional Organisation of Drug Companies (LEEM) conducted a report with 15 proposal axes. The 10th axis, "Facilitate access to vaccination", builds up on the observation that insufficient vaccine coverage can partly be explained by the lack of fluidity of the health course which multiplies the stages: initial prescription by the doctor, dispensing by the pharmacist and returning to the doctor or the nurse for the injection. These many time-consuming steps can lead to some people to forgo vaccination. The Leem states that actions are lacking impulses, and noted three initiatives that need to be established or strengthened: first, an electronic immunization record; second, vaccination in community pharmacies; third, reinforcing the agreement between the National Health Insurance and medical trade unions (Leem, 2018). Two proposals to facilitate access to vaccination are explained: first, to make the vaccination pathway more fluid for citizens by extending the practice of vaccination to all places of prevention and care, such as schools and pharmacies. Second, to expand the skills of health professionals to have a diversity of vaccination access points: occupational physicians, midwives, nurses and pharmacists whose presence throughout the country represents an essential relay, in particular for patients who are outside the path of care. Vaccination by the pharmacist, under certain conditions, for certain vaccines and after training, would be an appropriate response to the decline in vaccination coverage. In the 11th axis, the Leem also supports the establishment of an electronic immunization record to facilitate the monitoring of the vaccination status of the population (Leem, 2018).

The Covid-19 pandemic accelerated the debate on the entry of new actors of vaccination. The HAS was contacted during the pandemic by the Ministry of Solidarity and Health to issue an

opinion on a draft health emergency decree authorizing new categories of health professionals to participate in the vaccination campaign, either by allowing them to inject the vaccine against Covid-19, or by allowing them to prescribe and perform this injection. The increasing arrival of doses of vaccines made it possible to carry out vaccinations on a larger scale and require the mobilization of more competent professionals in order to rapidly vaccinate all those concerned. The HAS therefore recommends diversifying the profiles of vaccinators, but also of prescribers. Training may be necessary for some of them. The HAS reiterates the need to ensure the traceability of vaccines regardless of the place of vaccination and the central role of doctors, who must be consulted if there is any doubt about the patient's situation, his state of health or any possible contraindications (Haute Autorité de Santé, 2021). The extension of skills for nurses has also been evoked, with the ability to prescribe vaccines: as stated by the current Health Minister Olivier Véran on the 6th of April 2021 during a session of questions to the government in the National Assembly, “General practitioners and pharmacists are on board, and, this week, for the first time, district nurses will be able to prescribe and inject AstraZeneca vaccines at home to isolated old persons” (Assemblée Nationale, 2021). Other actors are present in the Covid-19 campaign, such as firefighters, veterinaries, medical students, but are less present in the policy arena and are not pushing towards more inclusion in the vaccination process. Pharmacists have appeared as key actors who could help to increase access to vaccination, targeting more people, having a good observing of individual behaviours, as they are in constant contact with outpatients but also healthy inhabitants.

Thus, in the face of a changed ecosystem, there is an increased need for accessible vaccination to increase vaccine coverage rates, whilst facing demographic, epidemiological and financial challenges (Megerlin, 2012). The diversification of vaccination actors mainly concerns routine immunization and adult booster vaccination, to ensure that vaccines are accessible, available, and affordable.

2. OBJECTIVES

This project aims to investigate the role and the interactions between health professionals regarding the organization of vaccination in France. The Covid-19 pandemic accelerated the process of diversification of health professionals entitled to prescribe or deliver vaccines in France. This reshuffles the role and interactions of health professionals in the vaccine ecosystem. The objective of this work is to display the factors that may prevent or encourage the diversification of vaccination actors, in a pandemic – epidemic setting, but also in a routine immunization setting. The paper aims to answer the following research question: what challenges does the diversification of vaccinators face in France?

Thus, the paper aims to investigate the following points:

- To determine how health professionals position themselves in the vaccine ecosystem
- To assess how health professionals interact with each other in the vaccine ecosystem
- To investigate how a pandemic, Covid-19, reshuffled vaccination actors
- To analyze how health professionals acknowledge the rationale behind the diversification of vaccinators in France

3. METHODS

Semi-structured interviews with health professionals were conducted to gain understanding on the factors behind the position regarding vaccination diversification. The interviewees were selected because of their role in vaccination. Semi-structured interviews allowed to collect the views, emotions, and opinions on the rationale behind the extension of vaccination to new actors. To select interviewees, inclusion and exclusion criteria have been set (Table 1). Interviews were conducted via Zoom or phone as face-to-face meetings could not be arranged due to the ongoing Covid-19 pandemic.

Table 1. Inclusion and exclusion criteria for interviewee recruitment

| Inclusion criteria |
|--|
| Participates in the routine vaccination process |
| Participates in the Covid-19 vaccination campaign |
| Is willing to participate and has given informed consent |

| Exclusion criteria |
|--|
| Has worked for less than 3 years |
| Has worked outside of France for more than 10 years in the last 15 years |

Data analysis and restitution

Data was processed manually. Following an inductive method, grounded theory from Glaser and Strauss (Glaser & Strauss, 1967) was used to analyze data. In the first level of analysis, open coding, data was break up in small pieces, which were in turn interpreted and labeled. Pieces of data that related to the same topic were labeled with the same codes. In the second level of analysis, axial coding, primary categories were exanimated and subcodes created. Finally, in the third level of analysis, selective coding, a main storyline underlying the synthesis of the data was determined (Allen et al., 2011).

Ethical issues

Before each interview, respondents were exposed the objectives, the methods and the finality of the study. Respondents were told that they could refuse to take part in the study or could interrupt the interviews at any moment. Data was anonymously collected, and not shared with a third-party, neither Sanofi Pasteur nor the EHESP. Oral consent was sought before recording the interviews, with a recorded sentence such as “I am willing to take part to this study”, or “I agree to participate to this interview”. The recordings were deleted once

transcribed. Transcriptions were coded chronologically. The thesis director and professional supervisor had only access to analyzed data and quotes from the interviews. The EHESP Data Protection Officer was consulted on the 7th of June 2021, and we agreed that it was not necessary to have a register card as the information collected was not re-identifiable. I did not consult an ethic committee, past experience of my supervisor showed that the best way to have anonymization is to not have a paper signed for consent; oral consent is enough.

4. RESULTS

In total, from March to May 2021, 20 health professionals were contacted, and 10 responded positively. By the end of May 2021, 10 interviews had been conducted. Included in these 10 interviewees were 4 district nurses, 3 family physicians, 3 community pharmacists. Among the 10 non-responders, 6 declined for not having enough time at the moment to conduct an interview and having other priorities, 2 declined as they felt they did not participate enough in the vaccination process, thus not having sufficient experience, and 2 stopped responding. All respondents were French; thus, questions and responses were given in French. Respondents' answers have been translated from French to English.

Healthcare professionals: analysis of their experience, perceptions and opinions on the diversification of vaccination actors.

4.1. Experiences regarding vaccination: role and relationships with patients and health professionals

Each health professional outlines its role regarding vaccination and public health, and their relationships with patients. In all professions, the informative role and prevention role is especially emphasized, along with the importance of protecting oneself with vaccination:

“My role is, before anything else, to provide information and do prevention by adapting [my speech] vis-à-vis the different populations that I am responsible for, according to their age, their morbidity rate, pathologies (...) and my role as caregiver is to convince them regarding the benefits of being vaccinated, to protect themselves” (Interview_1_district_nurse).

Pharmacist also consider themselves as public health players, involved in prevention. They acknowledge the evolution of their role and their impact regarding vaccination:

“We also have a role in convincing people to get vaccinated, in an approach to increase vaccine coverage rates, by discussing the advantages of influenza vaccination and the limits” (Interview_7_pharmacist).

“Before recently, I did not have a big role, I was delivering the vaccines. (...) Then we were authorized to vaccinate, against the flu, for people at risk, who brought a voucher. From the second year, people without vaccination vouchers asked us if we could vaccinate them, people with relatives at risk for example, or who traveled a lot and wanted to protect themselves” (Interview_9_pharmacist).

The population they are interacting with responds well to vaccination, and few refusals are encountered; health professionals progress in a populational environment mostly inclined to vaccination. People mainly seem happy:

“Patients come to be vaccinated so they react well; there is no apprehension, they come for that, they already know, generally these are vaccines that they do every year” (Interview_3_district_nurse).

Health practitioners recognize that although compulsory vaccination encourage people to get vaccinated, personal protection is put forward as an argument to encourage people to get vaccinated and overcome their fears:

“There are several categories of people, that I personally meet (...) most of the time it is our patients, who are either used to getting the flu shot, or people we see throughout the year, and we encourage them to get the flu shot” (Interview_3_district_nurse).

“On boosters, on DTP, I have few refusals. I put forward personal protection. On primary vaccination, the parents agree to the vaccination, first because it is compulsory; I can remember I have had only one reluctant parent, and then I lost sight of the child” (Interview_4_family_physician).

Contrary to the statement in the report Fischer regarding the difficulty for physicians to answer patients' hesitancy, fears or questions (Fischer, 2016), health professionals interviewed consider it as easy to answer and to reassure the patients on the benefits of vaccination and on secondary effects:

“I do not have too many refractory people, they are often undecided, they do not know, they have fears, questions, but it is easy to answer them” (Interview_8_family_physician).

The Covid-19 pandemic even encouraged people to get vaccinated against flu:

“We had a small proportion of people who used to refuse the flu shot and this year they asked for it, saying “usually I don't get the vaccine, but this year I'm going to do it”” (Interview_5_pharmacist)

4.2. Health professionals' impact on vaccine confidence

Regarding their interactions with patients, nurses and physicians acknowledge the influence they can have on the decision of the patient:

“There is always some influence on the population, because as a quality of health professional, they [the patients] are very confident and attentive to the fact that we are

very up to date and very knowledgeable about the information” (Interview_1_district_nurse).

The notion of trust is especially emphasized, along with the importance of having a genuine exchange with the health professional; patients seem to like when health professionals share their personal experiences and preferences. Although not being scientific, the argument works. This reinforces the idea that patients have a specific relationship regarding their health professional, especially general practitioners:

“The fact of being myself quite convinced of the interest of [vaccination], I think that it also plays in the capacity to convince, and therefore often (...) the parents ask me, “ your children, have you had them vaccinated? ”, well obviously I had them vaccinated, and in fact I have the impression since I am vaccinating my own children, it is a criterion to say “ if she did it to her children, it is good ”. That surprises me, I find that it is not a very scientific argument, but anyway for the patients, it seems to convince them a lot.” (Interview_2_family_physician).

And this personal experience is also shared and seem to work for non-medical professionals:

“People ask me a lot for my opinion on the benefits of being vaccinated on the one hand, and on the other hand on what personally I would have to do as a user if I had to be vaccinated” (Interview_1_district_nurse).

As evoked in the literature review, parents consider practices as places with better privacy and safer for vaccination (Shah et al., 2018). The secureness and reassuring context of the practices may create a better environment than pharmacies for vaccination; the feeling from patients that practices are safer than community pharmacies also poses questions of its changes and evolution, to get it more suitable to vaccination. A physician also explains that the office is reassuring for the patient, as they know the place, and they will prioritize going to their usual physician office over rapidity and a larger choice of vaccines, as for Covid-19:

“What I also observed is that the elderly preferred to be vaccinated in my office, because they know me and it is “safer”, even though they were eligible for Pfizer. I said that in the vaccination center they would have their two doses quickly, they preferred AstraZeneca because I was the one who vaccinated. The office gave reassurance” (Interview_4_family_physician).

Pharmacists recognize that people are not coming to them for advice, but rather out of convenience, and that their impact on people’s opinion is limited:

“For my interactions with the general population, they do not necessarily come for advice, but they are happy with the local service” (Interview_5_pharmacist).

“They come to us for their final opinion, but they have been on the internet and the media for other information before us. We come in second position” (Interview_5_pharmacist).

Indeed, media coverage on vaccination and especially on the Covid-19 campaign exacerbates the fear of patients, despite the reassurance brought by their health professional:

“(…) information must be relayed. Unfortunately, it maintains an anxiety-inducing environment (…) rather morbid, not very happy” (Interview_1_district_nurse).

“Overall, I still saw that people are very stressed by what is being said in the media. It increases stress a lot” (Interview_4_family_physician).

“There are some who will never be reassured (…) whatever one might say, as a nurse, it will always be TF1 which is right” (Interview_6_district_nurse).

4.3. Covid-19 vaccination campaign’s influence on the professional recognition

The reshuffle of vaccination actors in France through the Covid-19 vaccination campaign impacts the perception and the role of some health professionals in the vaccine ecosystem. Covid-19 creates a sense of unity among all health professionals able to vaccinate; the health professionals interviewed feel like they are united and doing their public health service. The unity between all actors is outlined:

“I think that today we realize that we are all concerned, all health professionals are concerned” (Interview_1_district_nurse).

“We are talking about all the health players, we even called in veterinarians (…) all those who are able to do it, that is to say who have a technique, who have the capacity to broaden their skills at the service of a population” (Interview_10_district_nurse).

Besides, the Covid-19 vaccination campaign changes their own consideration as players regarding vaccination, their role and recognition by others:

“As a pharmacist, I find it important to have greater recognition from patients, but also from healthcare professionals” (Interview_7_pharmacist).

“It is true that for once, we have a role of both regulator, informant, actor and at the same time, reassurance on the merits of being vaccinated” (Interview_1_district_nurse).

“I think that if the health ministry had told the liberal nurses, “we are counting on you to vaccinate” (…) then there would be no worries. We felt a bit forgotten” (Interview_6_district_nurse).

4.4. The need for technical and practical organization

This new role of vaccinator seems to have been welcomed well by all actors. However, several concerns are made, first regarding the safety of doing emergency vaccination, but also routine vaccination:

“There are no levers, no obstacles - anything is possible, whether in the pharmacy or at home. Then we talk about security. Let me give an example: I do an AstraZeneca vaccine, I have my dose of adrenaline [to give in case of an emergency], knowing that as a health professional [...] the only adrenaline that I have ever given was in the emergency room in a very supervised way by a medical team, with very precise dosages, with an order to be followed; today I have a small adrenaline kit with a pre-filled syringe [and] I am on my own to give my injection, I have no technical help around me, I am at home - and the decision and the responsibility rests with me, while being at the heart of the scenario (...) [if] the person makes a shock, I inject him with his adrenaline, I call the SMUR [Mobile Emergency and Intensive Care Service], I wait, crossing my fingers, for it to go no further” (Interview_1_district_nurse).

“Nurses vaccinating at home, I do not think there are optimum safety conditions, so no, it has to be done safely for the patient, and here with the Covid, we are not there” (Interview_6_district_nurse).

Responsibilities regarding Covid-19 vaccination at home seem excessive for nurses, which questions their willingness to have their competencies extended to new acts:

“There are too many risks, too many responsibilities, I did not study to have this kind of responsibility” (Interview_3_district_nurse).

The question of training is then evoked regarding the capacity of new actors to vaccinate, and for them to have new responsibilities:

“In absolute terms I am not against enlargement, the problem is not so much to enlarge, it is rather what training, beforehand” (Interview_2_family_physician).

Another fear that emerges regards the history of the patient, and the lack of information available between health professionals. Whilst the topic is not mentioned in the interview questions, it comes numerous times in the interviews, as a condition to make durable the diversification of actors. Knowing the medical history or the allergies of the patient appears as an important concern, especially for pharmacists; whilst they themselves consider that they lack information, nurses and physicians are also worried about the lack of visibility regarding the patient medical records:

“Unless there is an electronic immunization record, which centralizes everything and which can be consulted by everyone, anytime, the pharmacist, the nurse, the doctor, it does not [the vaccination] seem safe” (Interview_5_pharmacist).

“Usually, the general practitioner vaccinates, and he knows your medical history. Pharmacists (...) I do not think they have access to all the necessary information, at the medical level of the patient - the patient says what he wants, he cannot, he does not have the patient's medical record” (Interview_3_district_nurse).

The need for a coordinated care pathway is a notion that stand out, notably through the electronic immunization record – a notion that has already been evoked in the report Fischer (Fischer, 2016) that showed that the lack of information from practitioners regarding the vaccination status of their patients prevented them from combatting vaccine hesitancy. Physicians indeed furthermore emphasized the lack of monitoring due to the non-existence of this immunization record:

“For vaccination boosters, there is no electronic immunization record, so if people go to the pharmacy without proof that is appearing somewhere ... We lose this monitoring” (Interview_4_family_physician).

“It would be interesting to extend the immunization record, to see when the last booster was, it would give a real possibility to monitor the importance of vaccination. But there is no political will, because the vaccination coverage rate in France is very good, so committing resources to this project will not save the government money” (Interview_2_family_physician).

“The CPAM [Primary Health Insurance Fund] has made a follow-up diary for the Covid, which is very good, I think it could be extended for routine vaccinations” (Interview_4_family_physician).

The lack of space and materials appears as a limitation for pharmacists to extend vaccination, hence they prefer mass vaccination centers during epidemics; pharmacists also outline that certain pharmacies may not be suitable for vaccination, with adaptations that need to be made, especially in small pharmacies:

“Personally, I would like to discuss vaccination more, to be even more integrated if we are given the logistical means, to do prevention, to have prevention posters, material available ... I think that many pharmacies are in our case, they would like to vaccinate, but they do not have enough space and material” (Interview_9_pharmacist).

“The logistics of this vaccination made it very time-consuming, while the vaccination centers seemed to be more effective” (Interview_5_pharmacist).

4.5. Routine vaccination is in the grip of a turf war between nurses, physicians and pharmacists

4.5.1. Nurses

Nurses consider vaccination as an organizational burden, badly paid:

“Vaccination is a bit arduous; we do that because it is a public health service” (Interview_10_district_nurse).

“When someone calls us and says, “can you come by my house and vaccinate me?” it is complicated, in addition it is not well paid, each time it takes me time, any injection, with the trip and all that, it takes twenty or thirty minutes” (Interview_6_district_nurse).

However, despite this expressed burden, nurses have this idea of being helpful and felt that keeping routine vaccination with the physicians and themselves was sufficient. They did not want to be discharged vaccination:

“I think the best couple is the nurse / general practitioner, they should be valued” (Interview_6_district_nurse).

The nurses indeed see pharmacists as not knowing enough about the patient, missing potential important information that they can see or discuss in homes:

“Even if I say it is a bit complicated to vaccinate, it does not matter, it still allows us to be able to go to the people, it is public health, we can also see things that pharmacists cannot see when he [the patient] is vaccinated at the pharmacy” (Interview_4_district_nurse).

Nurses state that the role of pharmacist as vaccinator is not effective in increasing the vaccine coverage:

“I think that the doctor in 1 and the nurse in 2 are largely sufficient to meet the demand, and then I do not think that increasing the number of professionals is an appropriate response, and I have seen it in previous years, on pharmacists vis-à-vis influenza vaccination, it did not carry more people, brought back or encouraged more people to come to be vaccinated for convenience, in a pharmacy for example” (Interview_6_district_nurse).

Nurses wanted to respect clear boundaries between health professionals, pharmacists being seen as kind of hungry for more meaningful work:

“(...) the impression we have (...) [is that] pharmacists are more and more hungry (...) I do not know why, maybe they do not feel good to be considered as businessmen, and not health actors ... But if they could stay in their role without nibbling the work of nurses or the work of the doctors ...” (Interview_6_district_nurse).

Some nurses have more balanced views regarding pharmacists and acknowledge that personal relationships matter a lot:

“We have friendly relations [with pharmacists], I think there are nurses who cannot stand it (...) they have the impression that it interferes with their work” (Interview_10_district_nurse).

“It is true that having lived it, I personally have the chance to have a relationship which is courteous and rather friendly with the pharmacies, which, after discussion, wanted to play the game - they vaccinate at a minimum and refer to the nurses’ office, to be able to ensure that everyone is doing well too” (Interview_1_district_nurse).

4.5.2. Pharmacists

Pharmacists, newcomers in vaccination, seem respectful of the existing relationships between the population, nurses and physicians:

“Overall, people trusted us, and we were careful not to encroach on the beds of nurses or doctors. We wanted to respect the attachment to the doctor and nurse (...). A health professional can be upset if his vaccine is stolen, it must be done in good agreement” (Interview_9_pharmacist).

They acknowledge that nurses are more reluctant to cooperate on flu vaccination, whilst doctors seem happy to delegate this task:

“Between professionals, it is a double-edged sword: cooperation or tension. We, on the flu, we had tensions with the nurses, while the doctors, the flu, it bothered them [to do it]” (Interview_7_pharmacist).

The personal relationships with other health professionals and the local context determine the extent of the turf war regarding vaccination:

“I think the local context matters a lot. If we get along well with our medical and nursing colleagues, everything will be fine, we will have a real integrated health system” (Interview_9_pharmacist).

4.5.3. Physicians

Physicians do not defend their turf on vaccination and are more favorable to the diversification of vaccination actors, as it is facilitating for the patient and less doses are wasted:

“I have the impression that for me, it is rather facilitating, the vaccination in pharmacies, I have the impression that there are fewer doses forgotten in the fridge and lost, sold but not administered” (Interview_2_family_physician).

“I have the impression, for example for the flu vaccine, to do much less than before, but I have the impression that at the scale of my population, more of my patients are being vaccinated” (Interview_8_family_physician).

4.5.4. The turf war

The need for more prevention to strengthen healthcare systems drives this rationale behind the diversification of vaccinators in France, by creating more access points. Physicians and nurses are doubting on the training of pharmacists regarding prevention and the time they will allocate to it:

“For the flu, I think there is a real interest in the pharmacies being integrated, because they have a great firepower. These are access points. But for all the other vaccinations, I do not see the point, there is a need for follow-up” (Interview_4_family_physician).

“Pharmacists are not necessarily going to do prevention, whereas the time of the consultation is a time of discussion about many other things” (Interview_4_family_physician).

“I have observed that the pharmacy flu vaccination is not a problem (...) But I still wonder how much time was taken for prevention, maybe they would spend less time speaking about it” (Interview_2_family_physician).

Pharmacists themselves acknowledge their limitation regarding patient follow-up, especially children, or patients that have been hard to convince:

“In the case of children vaccinations, no (...) it is the doctor who looks at the health record and who follows the vaccination (...) if it is a third party who is delegated to that, it dilutes the information” (Interview_9_pharmacist).

“This could be a point of contention, especially since (...) there are still moms who are not convinced, so there is a role of persuasion to do (...). It is true that when the doctor or pediatrician is very pro-vaccination, and we come after him to take his vaccination, (...) this is not nice. It can be subject to small turf wars” (Interview_5_pharmacist).

Opinions are mixed on the usefulness to diversify vaccination actors towards adolescents and adult boosters. Some physicians emphasize the added value of pharmacists against the

resurgence of certain diseases, whilst others argue that boosters allow to reach adults and to engage with them on prevention:

“In my opinion, all adult or epidemic / pandemic vaccinations would be interesting: DTP boosters, measles ... Diseases where there is a resurgence and public health need” (Interview_8_family_physician).

“From 11-13 years old, it can be discussed, whether it is for the DTP booster of 11-13 years, or HPV, it would not shock me that it is done by the pharmacy” (Interview_2_family_physician).

“In general, I like to do the boosters, because it gives a reason to adults, who are often parents and busy, to come to the office for themselves, I can talk to them about other things, screenings, see if there are other problems, pathologies, often the consultation is not just used to vaccinate, we go further” (Interview_8_family_physician).

The diversification of vaccination actors, by multiplying prevention actors, creates more access points to get people vaccinated. As noted in the literature, diversifying actors may help reach other population, notably in medically underserved areas; pharmacies are convenient and accessible (Murphy et al., 2012). The easiness of access to pharmacies is emphasized by health professionals ...:

“In addition, it is very simple, it makes it possible to reach those who do not have attending physicians, those who have jobs where they see little or no occupational medicine, all young and healthy people” (Interview_2_family_physician).

... despite a fear of multiplication of vaccination channels disturbing people:

“On the other hand, I think that the multiplication of actors can confuse people, because they no longer know where to go” (Interview_4_family_physician).

Whilst nurses defend their turf in routine vaccination, they and the other health professionals are inclined to the expansion of vaccinators epidemics or pandemics:

“For routine vaccinations, it is not necessary to perpetuate this enlargement, but for pandemics yes - because we are at war, against something, and all energies must be mobilized, on a common goal” (Interview_1_district_nurse).

“I think that for Covid, it is good that there are other actors regarding vaccination, because the organization is time consuming, vaccination is difficult to organize” (Interview_4_family_physician).

Expanding the vaccination roles to other people may be seen as contradictory to other part of the discourse which says general practitioners should be the center of health care:

“There had also been a week [regarding Covid-19 vaccination] when we were told that our order [of vaccination doses] will be delivered after the order of pharmacies, and so to expect the doses the week after. (...) And so inevitably, for us it is a little confusing, because everyone tells us “the attending physician is at the center of patient care, must be placed at the center of decisions.” (Interview_2_family_physician).

Eventually, the question of financing and conflicts of trade unions comes from physicians and pharmacists. Physicians acknowledge that doctors’ trade unions will defend their turf on vaccination, but the interviewees do not agree with that position:

“I can imagine that there are some doctors’ unions who will go “but it is out of the question, it is the role of the doctor”, it is going to happen” (Interview_8_family_physician).

The unions’ point of view may be represented by this interviewee:

“The interest is what, it is the interest of a population or the interest of a category of caregivers, who want to defend their little home, and who want to defend their fee-for-service, we are paid for the act (...) the money is always better in my pocket than in the pocket of others, we will not allow [more vaccinations by other health professionals]” (Interview_2_family_physician).

Finally, financing and remuneration is mentioned by one pharmacist, who wants to be remunerated more if pharmacists are allowed to vaccinate more:

“Regarding the cost, we will have to be remunerated, and we will not accept a low-cost vaccination (...) We will already have to put remuneration [in the agenda], and after we will have to invest in training” (Interview_5_pharmacist).

5. DISCUSSION

Health professionals consider themselves as important in the vaccine ecosystem. Nurses emphasize their close relationships with patients, along with offering a proximity service and targeting people that are often isolated and at risk. Whilst the act of vaccination is arduous for them, they want to keep doing it as it allows them to reveal other issues a patient may have, by going directly to their house. Family practitioners also appreciate doing vaccination boosters in their office, as it allows them to discuss prevention, screening with a population that they do not see often. They are in favor of flu vaccination by pharmacists but are skeptical regarding the role in prevention that pharmacists may have. Health professionals acknowledge that the relationships between health professionals impact the vaccination organization at the local level. Pharmacists, as they are newcomers in the ecosystem, are very careful of not impinging on the vaccination of liberal nurses.

From the interview analysis, several statements can be made regarding the challenges faced by the diversification of vaccinators:

5.1. Collaboration

Collaboration appears as the notion that needs to be reinforced to ensure successful actors' diversification. Indeed, collaboration is a key component of an effective and sustainable healthcare system and is a core value in the organization of vaccination campaigns. To reinforce multidisciplinary exercise on territories, territorial professional health communities (CPTS) have been created in 2016 and are made to help health professionals to better structure their relationships and to coordinate to decompartmentalize and reorganize the health care system (Agence Régionale de Santé, 2021). These CPTS represent initiatives coming from actors on the ground themselves, that want to respond to a locally specific issue, and a solution to better collaboration; they may offer a solution to better interactions between vaccinators.

5.2. Guidelines

All health professionals call for the need to have guidelines and clear boundaries regarding the role of new actors, as they fear an unbalance in the vaccine ecosystem. Some of them already experience this unbalance with Covid-19 vaccination campaign, despite also feeling that they are part of a collective effort. Health professionals also argued that this extension to new actors is not necessary to last in time. Eventually, all actors acknowledge the fact that the Covid-19 pandemic reshuffles the organization of vaccination in France. The notion of

prevention is especially emphasized by all health professionals, hence reinforcing the idea that prevention is important in the realm of care.

5.3. Groups against diversification

Whilst the nurses interviewed personally oppose the diversification towards pharmacists, they do not mention their trade unions, and their implications in the decision-making. On the contrary, physicians acknowledge that their trade unions will likely oppose further diversification. Nurses seem to oppose diversification personally, but do not have a unified voice to carry their opinion and share their practical experience on the ground, which may be a reason as of why, as expressed during the interviews, nurses feel forgotten and not heard, are more assertive and less nuanced than general practitioners or pharmacists. Interestingly, nurses themselves called in 2018 for an extension of their capabilities to vaccinate against other diseases such as pertussis, poliomyelitis (Ordre National des Infirmiers, 2018), and proposed to extend vaccination of adults without medical prescription (Ordre National des Infirmiers, 2019). In a study on the future of the nursing profession run by the National Order of Nurses in 2021 amongst 30,000 nurses, 46% estimated that since the beginning of the Covid crisis, nurses are not better recognized by patients, 60% estimated that they were not better recognized by other health professionals, 77% that they were not better recognized by the public authority, and 90% estimated that nursing is not recognized to its full value in healthcare systems (Ordre National des Infirmiers, 2021). The difference of power between professional orders thus bears an influence on professional recognition and interactions with other health professionals.

5.4. Prevention

Physicians and nurses fear that pharmacists will not do enough prevention. The role of the pharmacist may need to be englobed in a broader view of care, and not limited to providing the vaccine. Prevention is already a mission of the pharmacist, which helps to fight against obesity (Blanchet, 2015; Poutier et al., 2017), smoking (Gautier et al., 2005), contraception and unwanted pregnancies (Aubin et al., 2009). Training is still necessary on subjects where the morality of the pharmacist may interfere, such as alcohol use disorder (Pouyet-Poulet et al., 2001). Collaboration between all health workers is needed on this topic, by creating an integrated prevention policy; prevention is based on information and health education, involving all health professionals, including the pharmacist (Pouyet-Poulet et al., 2001). The fact they allow to reach different population is already a preventive action. Underserved or marginalized population may benefit from this proximity service. Pharmacists can for instance

provide self-sampling kits regarding cancer screenings, removing logistical barriers for people (Fuzzell et al., 2021).

6. LIMITATIONS

Past studies in France have mainly studied the perception of pharmacists vaccination among pharmacy students (Comboroure & Mueller, 2014) or amongst the general population (Martin, 2018). By engaging with different actors on the ground, this study aimed at understanding the relationships between health professionals, and to question them directly on how they see future vaccination campaigns, and what actors could be involved. By asking them a prospective opinion, this study was able to engage with actors on the ground directly to provide an encompassing vision of the vaccination ecosystem. However, due to time-constraints and the current Covid-19 vaccination campaign, health professionals were busy and hard to reach. It could be interesting to replicate this study with more interviewees, and a larger panel of data. Despite a small panel of interviewees, the results of this study still suggest that collaboration must be strengthened between health professionals to overcome the challenges that the diversification of vaccination actors in France face.

Nurses and physicians interviewed stated that there is a need to clarify the channels of vaccination as having too many channels for vaccination may confuse people to which health professionals, they should turn to to get vaccinated, or for which vaccine. This choice overload has been studied for tourism (Park & Jang, 2013), with authors stating that consumers made no choice when they were presented more than 22 choices. To replicate a study with people regarding vaccination may be interesting on whether the channels of vaccination need to be clarified, or if too many choices in vaccination pathway may result in no vaccination. Polman (2012) shows that people prefer to select among few options than many options when they have to make a decision for themselves. It could also be interesting to have a differentiated analysis to see in which geographical context – for instance, comparing data from location with a high density of physicians and location with a low density – people go more to the pharmacists.

Eventually, the study could be extended at unions' public policy and the impact of their voice in the political and policy arena; it might be interesting to discuss, with more literature, the political support accorded to professional unions and the link regarding their acceptability of new responsibilities for themselves or for other health professionals.

7. RECOMMENDATIONS

The Covid-19 crisis sheds a light on the diversification of vaccination actors in France, and the interviews brought forward the challenges that diversification may face. In order to overcome these challenges and strengthen collaboration between health professionals, several recommendations can be made.

First, a clear framework needs to be implemented, through concertation with all professional orders concerned. Pharmacists appear as important health professionals, that have a place in emergency and pandemic vaccination, but also routine immunization. There is a need for strengthened collaboration at the local level, for pharmacists not to appear as a threat to other vaccinators, but rather as an added value able to target another population. New vaccination actors, such as firefighters or veterinarians that have emerged during the pandemic of Covid-19 only seem essential for emergency, to be mobilized during epidemics and pandemics.

Second, pharmacies and pharmacists seem appropriate to administer vaccination. As stated by Freney (2012), it appears completely appropriate and feasible for pharmacists to administer vaccination to a well-defined set of recipients and if it is limited to a certain number of vaccines. These vaccines could be vaccines with no contraindications – inert vaccines -, such as vaccines for flu, booster doses for diphtheria, tetanus, pertussis, polio, and HPV vaccines. Pharmacists would target adults and adolescents without chronic diseases or allergies and would exclude pregnant women. Training would need to be reinforced to ensure a good implementation of the vaccination programs by pharmacists, and to ensure that space, storage, and preventive measures could be dealt with in the dispensary.

Third, the development of an electronic immunization record is needed to reinforce an integrated healthcare pathway. This could facilitate the extension of vaccination to pharmacists or other health actors, by including adult booster or travel vaccines, with the history of the medical history of patients included in it. Health professionals interviewed have strongly called for the development of this tool, to be shared amongst immunization actors.

8. CONCLUSION

The lack of collaboration and coordination among health professionals appears as the main challenge that could be impeding the extension of diversification, through turf wars at the local level. The evolution of vaccination management with an eventual implication of community pharmacies needs an evolution of cultures and of organizations (Megerlin, 2012). Whilst favorable to maintaining the extension to new actors during epidemics and pandemics time, health professionals do not agree on the extension for routine vaccination. Despite being implemented since 2017, flu vaccination by pharmacists is not always well accepted by liberal nurses. Regarding additional vaccinations, immunization actors call for the implementation of an electronic immunization record, which could extend the number of vaccines realized by pharmacists or other health professionals and ensure a better coverage. The increased role of pharmacists as a vaccinator, but also as a prevention actor appears as essential in the sustainability of healthcare systems, hence a framework is needed to strengthen collaboration between health professionals.

This study could be used to enhance the knowledge on the interactions between health professionals, and to take more into account the local context regarding the role of new vaccination actors. In low health care density areas for instance, with few general practitioners, the role of the pharmacists and of liberal nurses could be reinforced to provide health services to the general population. To institutionalize the role of pharmacists as prevention actors regarding immunization and prevention can increase access to vaccination and improve vaccine coverage rates, thus strengthening healthcare sustainability and healthcare systems resilience.

BIBLIOGRAPHY

- Académie Nationale de Pharmacie (2015) *Améliorer la couverture vaccinale. Vaccination en pharmacie sur des modèles étrangers ?* Available from: <https://www.acadpharm.org/dos_public/CommuniqueE_vaccination_par_les_pharmaciens_VF_2015_05_04.pdf>.
- Agence Régionale de Santé (2021) *Les communautés professionnelles territoriales de santé.* Available from: <<https://www.ars.sante.fr/les-communautes-professionnelles-territoriales-de-sante>>.
- Allen, K.R., Kaestle, C.E. & Goldberg, A.E. (2011) More Than Just a Punctuation Mark: How Boys and Young Men Learn About Menstruation. *Journal of Family Issues*, 32 (2), pp.129–156.
- Alsaleh, N.A. (2020) Pharmacist-led flu vaccination services in community pharmacy: Experiences and Benefits. , 10 (1), p.5.
- Anderson, C. & Sharma, R. (2020) Primary health care policy and vision for community pharmacy and pharmacists in England. *Pharmacy Practice*, 18 (1), p.1870.
- Assemblée Nationale (2021) *XVe législature Session ordinaire de 2020-2021.* Assemblée Nationale. Available from: <<https://www.assemblee-nationale.fr/dyn/15/comptes-rendus/seance/session-ordinaire-de-2020-2021/deuxieme-seance-du-mardi-06-avril-2021>>.
- Aubin, C., Jourdain Menninger, D. & Chambaud, L. (2009) *La prévention des grossesses non désirées : contraception et contraception d'urgence.* Inspection générale des affaires sociales. Available from: <<http://campus.cerimes.fr/media/disquemiroir/2015-06-09/UNF3Smiroir/campus-numeriques/maieutique/UE-sante-societe-humanite/104000049.pdf>>.
- Bartsch, S.M., Taitel, M.S., DePasse, J.V., Cox, S.N., Smith-Ray, R.L., Wedlock, P., Singh, T.G., Carr, S., Siegmund, S.S. & Lee, B.Y. (2018) Epidemiologic and economic impact of pharmacies as vaccination locations during an influenza epidemic. *Vaccine*, 36 (46), pp.7054–7063.
- Blanchet, F. (2015) Rôle du pharmacien dans la prévention de l'obésité et l'accompagnement des patients. Role of community pharmacists in obesity prevention

and support to patients. *Bulletin de l'Académie Nationale de Médecine*, 199 (8–9), pp.1291–1302.

Burson, R.C., Buttenheim, A.M., Armstrong, A. & Feemster, K.A. (2016) Community pharmacies as sites of adult vaccination: A systematic review. *Human Vaccines & Immunotherapeutics*, 12 (12), pp.3146–3159.

Collange, F., Fressard, L., Verger, P., Josancy, F., Sebbah, R., Gautier, A., Jestin, C., Agamaliyev, E., Mikol, F., Floret, D., Guthmann, J.-P., Launay, O., Pulcini, C. & Ronnaux-Barron, A.-S. (2015) Vaccinations : attitudes et pratiques des médecins généralistes. *Etudes et résultats*, (910).

Comboroure, J.-C. & Mueller, J.-E. (2014) Perception de la vaccination et rôle du pharmacien d'officine : une enquête auprès des étudiants en dernière année de pharmacie en France. *Annales Pharmaceutiques Françaises*, 72 (2), pp.122–131.

Deccache, A. (2014) Éducation pour la santé : reconnaître les " nouveaux rôles " des médecins et pharmaciens. *La Santé de l'Homme*, (376), p.6.

Dias de Almeida, P. (2015) *Flu vaccination in pharmacies in Portugal*. Luxembourg, European Commission. Available from:
<https://ec.europa.eu/health/sites/default/files/preparedness_response/docs/ev_2015_0430_co06_en.pdf>.

Dubroc, L. (2018) Les services du pharmacien dans les pays anglo-saxons et leurs possibles applications en France. Bordeaux, U.F.R. DES SCIENCES PHARMACEUTIQUES Université de Bordeaux. Available from:
<<https://dumas.ccsd.cnrs.fr/dumas-01829059/document>>.

Ethgen, O., Rémy, V. & Wargo, K. (2018) Vaccination budget in Europe: an update. *Human vaccines & immunotherapeutics*, 14 (12), pp.2911–2915.

European Commission (2021) *Vaccination*. European Commission. Available from:
<https://ec.europa.eu/health/vaccination/overview_en>.

EXPH (2020) *THE ORGANISATION OF RESILIENT HEALTH AND SOCIAL CARE FOLLOWING THE COVID-19 PANDEMIC. Opinion of the Expert Panel on effective ways of investing in Health*. Luxembourg, European Union. Available from:
<https://ec.europa.eu/health/sites/default/files/expert_panel/docs/026_health_socialcare_covid19_en.pdf>.

- Faure, S., Apaire-Marchais, V. & Buxeraud, J. (2017) Implication des pharmaciens dans la vaccination antigrippale. *Actualités Pharmaceutiques*, 56 (568), pp.43–46.
- Fischer, A. (2016) *RAPPORT SUR LA VACCINATION Comité d'orientation de la concertation citoyenne sur la vaccination*. Ministère des Affaires sociales et de la Santé. Available from: <<https://www.vie-publique.fr/rapport/36133-rapport-sur-la-vaccination-comite-dorientation-de-la-concertation-cit>>.
- Freney, J. (2012) La vaccination par le pharmacien d'officine : aspects pratiques. *Annales Pharmaceutiques Françaises*, 70 (6), pp.315–322.
- Fuzzell, L.N., Perkins, R.B., Christy, S.M., Lake, P.W. & Vadaparampil, S.T. (2021) Cervical cancer screening in the United States: Challenges and potential solutions for underscreened groups. *From Science to Action to Impact: Eliminating Cervical Cancer*, 144, p.106400.
- Gautier, A., Léon, C., Wilquin, J.-L. & Guilbert, P. (2005) Les professionnels de santé face au tabagisme : résultats de l'enquête Baromètre santé médecins/pharmaciens, France, 2003. *Bulletin Épidémiologique Hebdomadaire*, (21–22), pp.101–102.
- Glaser, B. & Strauss, A. (1967) *The Discovery of Grounded Theory: Strategies for Qualitative Research*. Mill Valley, CA, Sociology Press.
- Guthmann, J.-P., Fonteneau, L. & Lévy-Bruhl, D. (2012) *Mesure de la couverture vaccinale en France. Sources de données et données actuelles*. InVS. Available from: <<https://www.santepubliquefrance.fr/determinants-de-sante/vaccination/documents/rapport-synthese/mesure-de-la-couverture-vaccinale-en-france.-sources-de-donnees-et-donnees-actuelles>>.
- HAS (2018) *Extension des compétences des professionnels de santé en matière de vaccination. Vaccination contre la grippe saisonnière*. Haute Autorité de Santé. Available from: <https://www.has-sante.fr/upload/docs/application/pdf/2018-08/recommandation_vaccinale__extension_des_competences_des_professionnels_de_sante_en_matiere_de_vaccin_2018-08-08_14-46-16_310.pdf>.
- Haute Autorité de Santé (2021) *Vaccination contre la Covid-19 : impliquer davantage de professionnels pour accélérer la campagne*. Available from: <https://www.has-sante.fr/jcms/p_3245564/fr/vaccination-contre-la-covid-19-impliquer-davantage-de-professionnels-pour-accelerer-la-campagne>.

- Hurel, S. (2016) *Rapport sur la politique vaccinale*. Ministère des Solidarités et de la Santé.
- Islam, J.Y., Gruber, J.F., Lockhart, A., Kunwar, M., Wilson, S., Smith, S.B., Brewer, N.T. & Smith, J.S. (2017) Opportunities and Challenges of Adolescent and Adult Vaccination Administration Within Pharmacies in the United States. *Biomedical Informatics Insights*, 9, p.117822261769253.
- Kirkdale, C.L., Nebout, G., Megerlin, F. & Thornley, T. (2017) Benefits of pharmacist-led flu vaccination services in community pharmacy. *Annales Pharmaceutiques Françaises*, 75 (1), pp.3–8.
- Largerion, N., Lévy, P., Wasem, J. & Bresse, X. (2015) Role of vaccination in the sustainability of healthcare systems. *Journal of Market Access & Health Policy*, 3 (1), p.27043.
- leem (2018) *Faire de la France la référence européenne de la politique vaccinale. Nos 15 axes de propositions*. Available from: <https://www.leem.org/sites/default/files/2018-04/LEEM_Plateforme_Vaccins2018_EXE3.pdf>.
- Legifrance (2019a) *Arrêté du 23 avril 2019 fixant la liste des vaccinations que les pharmaciens d'officine peuvent effectuer en application du 9° de l'article L. 5125-1-1 A du code de la santé publique*. Available from: <<https://www.legifrance.gouv.fr/loda/id/JORFTEXT000038409906/>>.
- Legifrance (2019b) *Arrêté du 23 avril 2019 fixant la liste et les conditions des vaccinations que les pharmaciens d'officine peuvent effectuer et donnant lieu à la tarification d'honoraire en application du 14° de l'article L. 162-16-1 du code de la sécurité sociale*. Available from: <<https://www.legifrance.gouv.fr/loda/id/JORFTEXT000038409885/>>.
- Legifrance (2019c) *Arrêté du 23 avril 2019 fixant le cahier des charges relatif aux conditions techniques à respecter pour exercer l'activité de vaccination et les objectifs pédagogiques de la formation à suivre par les pharmaciens d'officine*. Available from: <<https://www.legifrance.gouv.fr/loda/id/JORFTEXT000038409892/>>.
- Legifrance (2017) *Décret n° 2017-985 du 10 mai 2017 relatif à l'expérimentation de l'administration par les pharmaciens du vaccin contre la grippe saisonnière*. Available from: <<https://www.legifrance.gouv.fr/jorf/id/JORFTEXT000034676756/>>.

- Legifrance (2019d) *Décret n° 2019-357 du 23 avril 2019 relatif à la vaccination par les pharmaciens d'officine*. Available from: <<https://www.legifrance.gouv.fr/jorf/id/JORFTEXT000038409863>>.
- Lequillier, C. (2019) L'évolution du champ des compétences : l'exemple de la vaccination. *Journal du Droit de la Santé et de l'Assurance - Maladie (JDSAM)*, 24 (3), pp.13–16.
- Leuthold, C., Bugnon, O. & Berger, J. (2018) The Role of Community Pharmacists in Travel Health and Vaccination in Switzerland. *Pharmacy*, 6 (4), p.125.
- Martin, E. (2018) Perception de la vaccination dans une population toulousaine et propositions pour la communication autour de la vaccination par le pharmacien d'officine. Toulouse, Université Toulouse III Paul Sabatier. Available from: <<http://thesesante.ups-tlse.fr/2508/>>.
- Megerlin, F. (2012) La vaccination et le pharmacien d'officine en France : pour des actes innovants, vers des organisations innovantes ? *Annales Pharmaceutiques Françaises*, 70 (6), pp.323–332.
- Ministère des Solidarités et de la Santé (2021) *Calendrier simplifié des vaccinations 2021*. Available from: <https://solidarites-sante.gouv.fr/IMG/pdf/affiche_vaccination_2021.pdf>.
- Ministère des Solidarités et de la Santé (2016) *Marisol Touraine engage un plan d'action pour la rénovation de la politique vaccinale*. Available from: <<https://solidarites-sante.gouv.fr/archives/archives-presse/archives-communiques-de-presse/article/marisol-touraine-engage-un-plan-d-action-pour-la-renovation-de-la-politique>>.
- Ministère des Solidarités et de la Santé (2017) *Vaccination*. Paris, Ministère des Solidarités et de la Santé. Available from: <<https://solidarites-sante.gouv.fr/metiers-et-concours/les-metiers-de-la-sante/les-fiches-metiers/sages-femmes/article/vaccination>>.
- Murphy, P.A., Frazee, S.G., Cantlin, J.P., Cohen, E., Rosan, J.R. & Harshburger, D.E. (2012) Pharmacy provision of influenza vaccinations in medically underserved communities. *Journal of the American Pharmacists Association*, 52 (1), pp.67–70.
- OECD & European Union (2020) *Health at a Glance: Europe 2020 STATE OF HEALTH IN THE EU CYCLE*. Paris, OECD Publishing. Available from: <<https://www.oecd->

ilibrary.org/social-issues-migration-health/health-at-a-glance-europe-2020_82129230-en?_ga=2.119567304.1977373976.1624198891-1493602798.1624198891>.

Ordre National des Infirmiers (2021) *Les infirmiers s'interrogent sur leur avenir et souhaitent des évolutions profondes de leur métier*. Available from: <<https://www.ordre-infirmiers.fr/actualites-presse/articles/les-infirmiers-sinterrogent-sur-leur-avenir-et-souhaitent-des-evolutions-profondes-de-leur-metier.html>>.

Ordre National des Infirmiers (2018) *Pour améliorer la couverture vaccinale et rétablir la confiance, il faut s'appuyer sur des professionnels de santé compétents et bien formés*. Available from: <<https://www.ordre-infirmiers.fr/actualites-presse/articles/vaccination-professionnels-competents.html>>.

Ordre National des Infirmiers (2019) *RECONNAÎTRE LA CONTRIBUTION INFIRMIÈRE AU SYSTÈME DE SANTÉ. Le livre blanc de la profession infirmière*. Available from: <https://grandeconsultation-infirmiere.org/assets/front/themes/default/img/Livre_blanc_2019_CONSULTATION_INFIRMIERE.pdf>.

Ordre National des Pharmaciens (2017) *L'expérimentation de la vaccination contre la grippe par les pharmaciens d'officine pourra débuter à l'automne 2017 !* Ordre National des Pharmaciens. Available from: <<http://www.ordre.pharmacien.fr/Communications/Les-actualites/L-experimentation-de-la-vaccination-contre-la-grippe-par-les-pharmaciens-d-officine-pourra-debuter-a-l-automne-2017-!>>.

Ordre National des Pharmaciens (2018) *Rapport - Développer la prévention en France*. Ordre National des Pharmaciens. Available from: <<http://www.ordre.pharmacien.fr/Communications/Publications-ordinales/Rapport-Developper-la-prevention-en-France>>.

Ordre national des Pharmaciens (2021) *Vaccination à l'officine*. Available from: <<http://www.ordre.pharmacien.fr/Les-pharmaciens/Champs-d-activites/Vaccination-a-l-officine>> [Accessed 30 March 2021].

Ozawa, S., Portnoy, A., Getaneh, H., Clark, S., Knoll, M., Bishai, D., Yang, H.K. & Patwardhan, P.D. (2016) Modeling The Economic Burden Of Adult Vaccine-Preventable Diseases In The United States. *Health Affairs*, 35 (11), pp.2124–2132.

- Paitraud, D. (2015) *Vaccination à l'officine : l'Académie Nationale de Pharmacie maintient sa position et cite des exemples étrangers réussis*. VIDAL. Available from: <<https://www.vidal.fr/actualites/15515-vaccination-a-l-officine-l-academie-nationale-de-pharmacie-maintient-sa-position-et-cite-des-exemples-etrange-reussis.html>>.
- Paitraud, D. (2014) *VACCINATION À L'OFFICINE : UNE ANNONCE DE MARISOL TOURAINE QUI RECUEILLE DES AVIS CONTRASTÉS*. VIDAL. Available from: <<https://www.vidal.fr/actualites/14290-vaccination-a-l-officine-une-annonce-de-marisol-touraine-qui-recueille-des-avis-contrastes.html>>.
- Park, J.-Y. & Jang, S. (Shawn) (2013) Confused by too many choices? Choice overload in tourism. *Tourism Management*, 35, pp.1–12.
- Pharmacy Ireland 2020 Working Group (2008) *Interim report. Advancing clinical pharmacy practice to deliver better patient care and added value services*. Dublin, Pharmaceutical Society of Ireland.
- Polman, E. (2012) Effects of self–other decision making on regulatory focus and choice overload. *Journal of Personality and Social Psychology*, 102 (5), pp.980–993.
- Poutier, A., Ung, C., Delhumeau, S. & Hamidi, Y. (2017) Le rôle du pharmacien dans la prévention de l'obésité. *Actualités Pharmaceutiques*, 56 (566), pp.25–29.
- Pouyet-Poulet, É., Sauvant, M.-P., Pépin, D. & Planche, R. (2001) Le pharmacien d'officine face au problème des buveurs excessifs. *Santé Publique*, 13 (3), pp.237–248.
- Rémy, V., Zöllner, Y. & Heckmann, U. (2015) Vaccination: the cornerstone of an efficient healthcare system. *Journal of Market Access & Health Policy*, 3 (1), p.27041.
- Scholtes, B., Valentin, S., Spinewine, A. & Van Durme, T. (2020) *Administration de vaccins par les infirmiers sages-femmes et pharmaciens d'officine. Une étude multinationale*. UCLouvain Liège Université.
- Shah, P.D., Marciniak, M.W., Golden, S.D., Trogdon, J.G., Golin, C.E. & Brewer, N.T. (2018) Pharmacies versus doctors' offices for adolescent vaccination. *Vaccine*, 36 (24), pp.3453–3459.
- Shen, A.K., Fields, R. & McQuestion, M. (2014) The future of routine immunization in the developing world: challenges and opportunities. *Global Health: Science and Practice*, 2 (4), pp.381–394.

- Tabuteau, D. (2009) Crises et réformes. *Les Tribunes de la sante*, n° 22 (1), pp.19–40.
- UNDP (2021) *COVID-19 Pandemic: Humanity needs leadership and solidarity to defeat the coronavirus*. UNDP.
- Vaccination Info Service (2019) *Acteurs de la vaccination*. Ministère chargé de la santé ; Santé Publique France. Available from: <<https://vaccination-info-service.fr/Generalites-sur-les-vaccinations/Qualite-securite-et-efficacite-des-vaccins/Acteurs-de-la-vaccination>>.
- Vaccination Info Service (2017) *Qui peut me prescrire un vaccin ?* Ministère chargé de la santé ; Santé Publique France. Available from: <<https://vaccination-info-service.fr/Questions-frequentes/Questions-pratiques/Je-dois-me-faire-vacciner-que-dois-je-savoir/Qui-peut-me-prescrire-un-vaccin>>.
- Warner, J.G., Portlock, J., Smith, J. & Rutter, P. (2013) Increasing seasonal influenza vaccination uptake using community pharmacies: experience from the Isle of Wight, England. *International Journal of Pharmacy Practice*, 21 (6), pp.362–367.
- Westrick, S.C., Hohmann, L.A., McFarland, S.J., Teeter, B.S., White, K.K. & Hastings, T.J. (2017) Parental acceptance of human papillomavirus vaccinations and community pharmacies as vaccination settings: A qualitative study in Alabama. *Papillomavirus Research*, 3, pp.24–29.

GLOSSARY

| Term | Definition |
|----------------------------|---|
| Booster vaccination | Additional administration of a vaccine after a primer dose, the re-exposure to the immunizing antigen |
| Routine vaccination | Timely vaccination on a regular basis with vaccines recommended by the vaccinal calendar |

LIST OF ANNEXES

Annexe 1: Legislative and regulatory background regarding pharmacists' influenza vaccination

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ANNEXE 1: LEGISLATIVES AND REGULATORY BACKGROUND REGARDING PHARMACISTS' INFLUENZA VACCINATION

The procedures for implementing this vaccination activity, a new competence for the pharmacist, were defined by two decrees and three orders:

- Decree (*décret*) n° 2017-985 of the 10th of May 2017 on experimentation with the administration by pharmacists of the vaccine against seasonal influenza (repealed) (Legifrance, 2017)
- Decree (*décret*) n°2019-357 of the 23rd of April 2019 relating to vaccination by community pharmacists (Legifrance, 2019d)
- Order (*arrêté*) of the 23rd of April 2019 setting the list and conditions of vaccinations that dispensing pharmacists can perform and relating to fee pricing in application of 14° of Article L.162-16-1 of the Code of Social Security (Legifrance, 2019b)
- Order (*arrêté*) of the 23rd of April 2019 setting the specifications relating to the technical conditions to be observed in order to carry out the vaccination activity and the educational objectives of the training to be followed by community pharmacists (Legifrance, 2019c)
- Order (*arrêté*) of the 23rd of April 2019 setting the list of vaccinations that community pharmacists can perform in application of 9° of article L. 5125-1-1 A of the Public Health Code (Legifrance, 2019a)

ANNEXE 2: SEMI-STRUCTURED INTERVIEW GUIDE

Semi-Structured Interview Topic Guide

Note: this Interview guide has been translated into English for the purpose of the thesis. The questions were asked in French to respondents.

I want to thank you for taking the time to meet with me today. My name is Elsa, I am conducting interviews with key actors in the vaccine ecosystem for the project titled, "Who can vaccinate? A study of the diversification of vaccination actors in France". This project aims to study the role and interactions between health professionals in the organization of vaccination in France. The objective of this work is to identify the factors that can prevent or encourage the diversification of vaccination actors, in the context of a pandemic - epidemic, but also in a context of routine vaccination.

During this interview, I will ask you questions about the diversification of vaccination players in France, a process that has been accelerated by the Covid-19 pandemic. The interview should last between 30 and 45 minutes.

I would like to make sure that your comments are well received; so, I will record this interview and use the tape to produce a transcript. Once the transcription is complete, the audio will be destroyed. You do not have to talk about anything you do not want to talk about, and you can end the interview at any time.

Are there any questions about what I have just explained?

Are you willing to participate in this interview?

(1). What is your role in the vaccination ecosystem? Do you interact with other actors (regulators, pharmacists ...)? Can you give me examples of interactions with the general population regarding your role in vaccination?

(2). How do people respond to vaccination when they are in contact with you? What interactions do you have with patients/people/colleagues regarding this topic? Could you give me examples?

(3). Have you experienced/witnessed any changes in your role over the past 10 years? Could you give examples?

(4). How did the Covid-19 pandemic trigger changes in vaccination? How does it differ from the previous vaccination campaigns? According to you, what are the reasons for that change?

(5). What could be the reasons to expand the vaccination actors? What do you think would be the advantages and disadvantages? Why could it be relevant to implement this change?

(6). Which health professionals should be integrated in the prescription and/or delivery of vaccines? Why, or why not? What could be the benefits or disadvantages?

(7). What vaccines could be concerned by the diversification of vaccination actors? Why?

(8). What barriers could the implementation of such a change face?

(9). Do you think that diversifying vaccination actors could increase vaccine coverage rates? Why? What would be the benefits?

(10). What recommendations do you have for future vaccination delivery?

(11) Is there any topic that is missing according to you? Would you like to ask about something else?



Calendrier simplifié des vaccinations 2021

| Âge approprié | Vaccinations obligatoires pour les nourrissons | | | | | | | 6 ans | 11-13 ans | 14 ans | 25 ans | 45 ans | 65 ans et + |
|--|--|--------|--------|--------|---------|---------|------------|-------|-----------|--------|--------|--------|-----------------|
| | 1 mois | 2 mois | 4 mois | 5 mois | 11 mois | 12 mois | 16-18 mois | | | | | | |
| BCG* | ■ | | | | | | | | | | | | |
| Diphtérie-Tétanos-Poliomyélite | | ■ | ■ | | | ■ | | ■ | ■ | | ■ | ■ | Tous les 10 ans |
| Coqueluche | | ■ | ■ | | | ■ | | ■ | ■ | | ■ | | |
| Haemophilus Influenzae de type b (HIB) | | ■ | ■ | | | ■ | | | | | | | |
| Hépatite B | | ■ | ■ | | | ■ | | | | | | | |
| Pneumocoque | | ■ | ■ | | | ■ | | | | | | | |
| Méningocoque C | | | | ■ | | | ■ | | | | | | |
| Rougeole-Oreillons-Rubéole | | | | | | | ■ | ■ | | | | | |
| Papillomavirus humain (HPV) | | | | | | | | ■ | ■ | | | | |
| Grippe | | | | | | | | | | | | | Tous les ans |
| Zona | | | | | | | | | | | | | ■ |

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* Pour certaines personnes seulement

Une question ? Un conseil ? Parlez-en à votre médecin, votre pharmacien, votre sage-femme ou votre infirmier.

Pour en savoir plus



(Ministère des Solidarités et de la Santé, 2021)

RÉSUMÉ

« Qui peut vacciner ? Une étude de la diversification des acteurs de la vaccination en France ».

Objectif : La pandémie de Covid-19 a accéléré le processus de diversification des professionnels de santé habilités à vacciner en France. Cela remanie le rôle et les interactions des professionnels de la santé au sein de l'écosystème du vaccin. L'objectif de ce projet est de mettre à jour les facteurs pouvant empêcher ou encourager la diversification des acteurs de la vaccination, dans un contexte de pandémie - épidémie, mais aussi dans un contexte de vaccination de routine, pour répondre à la question de recherche suivante : à quels défis la diversification des vaccinateurs est-elle confrontée en France ?

Méthodes : De mars à mai 2021, des entretiens semi-dirigés ont été menés avec 10 professionnels de santé participant à la campagne de vaccination du Covid-19 mais également aux campagnes de vaccination de routine. Les entretiens ont permis d'analyser les positions et les perceptions des professionnels de santé sur la diversification des acteurs de la vaccination et la façon dont ils voient leur rôle professionnel dans la vaccination. La théorie ancrée a ensuite été utilisée pour analyser les données.

Résultats : La collaboration apparaît comme la notion qui doit être renforcée pour assurer une diversification réussie des acteurs. Alors que les infirmiers et les médecins généralistes reconnaissent la nécessité d'impliquer de nombreux acteurs pendant les pandémies, ils estiment qu'il n'est pas urgent de diversifier les acteurs pour les vaccinations de routine et défendent leur territoire. Tous les professionnels de la santé demandent des lignes directrices et des limites concernant le rôle des nouveaux acteurs, avec l'établissement d'un carnet de vaccination électronique.

Conclusions : Les guerres de territoire représentent le principal facteur qui pourrait entraver la diversification des vaccinateurs. Il y a besoin de renforcer la coordination et la collaboration entre professionnels de santé, et de renforcer le rôle des pharmaciens comme acteurs de prévention, pour renforcer la soutenabilité des systèmes de santé.

Mots-clefs : vaccination, vaccin, couverture vaccinale, immunisation, Covid-19, pharmacien, médecin, infirmière, Haute Autorité de Santé